

REMARKS

This Amendment, submitted in response to the Office Action dated January 24, 2008, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

I. Summary of Office Action

Claims 1-12 are all the claims pending in the application.

Claim 10 is withdrawn from further consideration under 37 C.F.R. § 1.142(b) as being drawn to a nonelected species. The election was made October 23, 2007 without traverse.

Claims 1-9, 11 and 12 are rejected under 35 U.S.C. § 112, second paragraph, due to alleged indefiniteness.

Claims 11 and 12 are rejected under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter.

Claims 1-5, 8 and 11 are rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Tazawa et al (hereafter “Tazawa”) (“A Fully Passive Echo-Canceller using a Single Microphone”) that is one of the Information Disclosure Statement (IDS) documents filed with the present application.

Claims 6, 7 and 12 are rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Tazawa.

Claim 9 is rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Tazawa in view of Dear et al (USP 4,832,147; hereafter “Dear”).

II. Claim Rejection under 35 U.S.C. § 112

In this Amendment, Applicant amends claims 1-9 and 11-12, and respectfully requests withdrawal of the rejection.

III. Claim Rejection under 35 U.S.C. § 101

Applicant respectfully requests withdrawal of the rejection as claims 11-12 are directed to statutory subject matter.

IV. Claim Rejection under 35 U.S.C. § 102 and § 103

In rejecting claim 1, the Examiner alleges that “A Fully Passive Echo-Canceller using a Single Microphone” teaches all the operations of the claimed method.

Applicant respectfully submits, however, that the amended claim more clearly defines and distinguishes the subject matter from the reference under the following analysis. The claim is amended at least based on the last paragraph of page 2 and the descriptions of Fig. 3 in the specification.

In view of the amended claim, Tazawa is deficient in teaching that: (i) each of the virtual (microphone) signals is generated by delaying a respective period of time as recited in the claim; and (ii) adding the delayed each of the virtual signals to produce the output signal.

As the claim is amended, the Examiner may allege that the equations (1)-(3) of Tazawa still teach the foregoing aspect of the claimed method. It should be noted, however, that the equations of Tazawa only show how an acoustic signal is constituted to include a plurality of echo (reverberation) signals, but do not teach beyond the general definition of the acoustic signal. When there are two echo signals, for example, the equation corresponds to “ $m(t) = s(t) + A_1s(t - \tau_1) + A_2s(t - \tau_2)$ ”. Here, the equation only shows that the acoustic signal is composed of a direct signal $s(t)$ at one time and two echo signals at two different times. In addition, these two echo signals are not free of any reverberation as the plurality of virtual signals of the claim.

The basic principle of Tazawa is directed to echo-canceling from the acoustic signal $m(t)$ as defined above, that is, obtaining only a direct signal $s(t)$ from the acoustic signal by subtracting all echo signals. See equation (2) on page 1192. The equation (2) plainly shows that all echo signals are summed and subtracted from the acoustic signal $m(t)$ to generate only the direct signal $s(t)$. By contrast, the present application employs a method to output a signal by generating virtual signals without any reverberation from an acoustic signal, delaying the virtual

signals, respectively, and adding the delayed virtual signals. In other words, instead of subtracting reverberation (echo) signals from an acoustic signal as Tazawa does, the present application provides that reverberation signals at each time are converted to virtual signals without any reverberation except the reverberation element at that each time, and delayed a respective period of time to be summed up to generate the output signal. This output signal cannot correspond to the $s(t)$ of Tazawa that is only a direct signal of the acoustic signal.

At least due to the above reasons, the claimed method is further distinguished from, and should be allowable over the reference.

Corresponding claims 11 and 12 should be allowable at least due to the similar reasons for claim 1.

Claims 2-9 should be allowable at least due to their dependencies and additionally recited elements. With respect to claims 6, 7, 9 and 12, the Examiner's official notice and Dear do not cure the deficiencies of Tazawa.

V. New Claims

Applicant adds new claims 13-18 to more fully cover the present application at least based on the last paragraph of page 2 and the descriptions of Fig. 3 in the specification.

Entrance and allowance of the new claims are respectfully requested.

VI. Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

AMENDMENT UNDER 37 C.F.R. § 1.111
Application No.: 10/812,066

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Respectfully submitted,



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